

ROTARY ENCODER (ABSOLUTE TYPE) EP50S8 SERIES

M A N U A L



Thank you very much for selecting Autonics products. For your safety, please read the following before using.

Caution for your safety

- Please keep "Caution for your safety" to avoid accidents or damages as using it correctly. The meaning of 'Warning' and 'Caution' is as follows; Warning In case a serious injury or dead may be occurred. Caution In case a little injury or damage of this unit may be occurred. The meaning of the mark on the product and manual is as follows; is a caution mark for danger in special condition.

Warning

- Please use it with double safety devices when it is used at the equipments which may cause damages to human life or assets (Ex: Nuclear power control, Medical equipment, Vehicle, Train, Air plane, Combustion apparatus, Entertainment or Safety device etc.) It may cause a fire, human life or assets.

Caution

- Do not drop water or oil on this unit. It may cause damage or malfunction. Please observe the rated voltage. It may damage or shorten the life cycle of the product. Please check the polarity of power and wrong wiring. It may cause damage to this unit. Do not short circuit the load. It may cause damage to this unit.

Outline

Absolute rotary encoder divides a revolution angle as certain rate from 0° to 360° and specifies electrical digital code (BCD, Binary, Gray Code) to the each divided angle position. By reading the absolute digital code output of the rotational shaft's position, this encoder is as the absolute revolution angle sensor. Because this absolute output do not have impact on the electric characteristic, this encoder does not need memory retention circuit against power failure and has high strength against noise.

Features

- Compact size of external diameter ø50mm
Various output code(BCD, Binary, Gray code)
Realization of high resolution(720 division, 1024 division)
Dust-proof, oil-proof by IP64

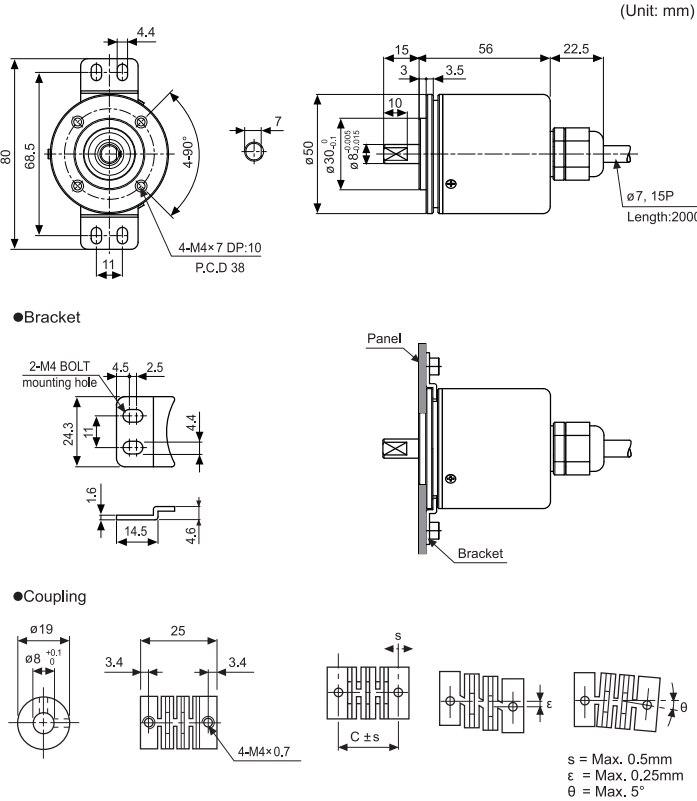
Application

- Precision machine tool Fabric machinery Robot Parking system

Ordering information

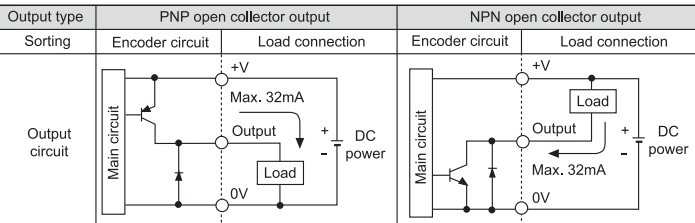
Table with columns for Series (EP50S8), Resolution/revolution (1024), Output code (1, R, P, 24), Revolution direction (F, R, CCW), Control output (P, N), and Power supply (5.5VDC ±5%).

Dimensions



- Using flexible coupling: When combining the coupling to encoder shaft, if there is big eccentricity or bend between rotating encoder shaft and mate shaft, it shortens the life cycle of encoder and coupling. Do not apply excessive loads to the axis of rotation.

Control output circuit

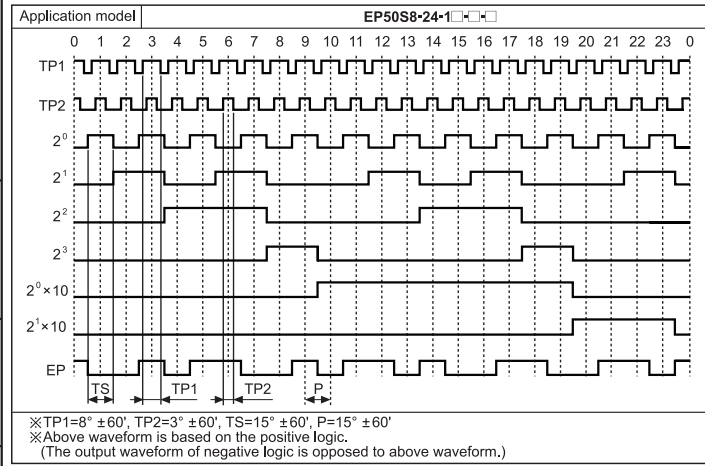


Output circuit shall be changed if overload is applied at output terminal or short circuit. The above specifications are subject to change and some models may be discontinued without notice.

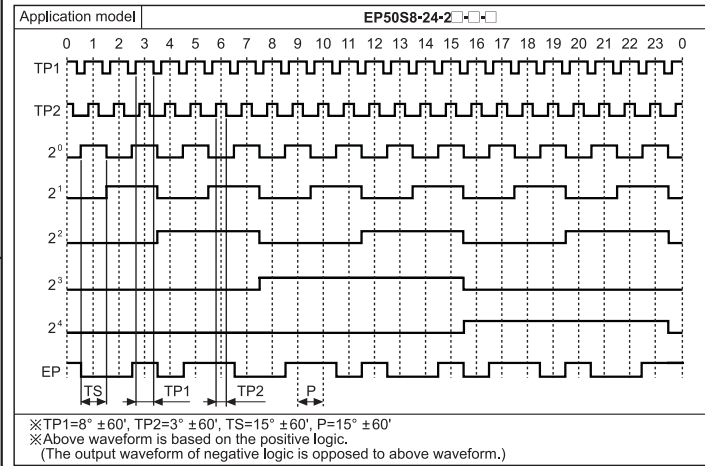
Specifications

Specifications table including Type (Absolute Rotary Encoder), Model (EP50S8), Resolution (6, 8, 10, 12, 16, 20, 24, 32, 40, 45, 48, 64, 90, 128, 180, 256, 360, 512, 720, 1024), Output code (BCD, Binary, Gray), Output phase/output angle, Control, Response time, Power supply, Current consumption, Insulation resistance, Dielectric strength, Connection, Starting torque, Moment of inertia, Shaft loading, Max. revolution, Vibration, Shock, Environment, Protection, Cable, Accessories, Approval, and Weight.

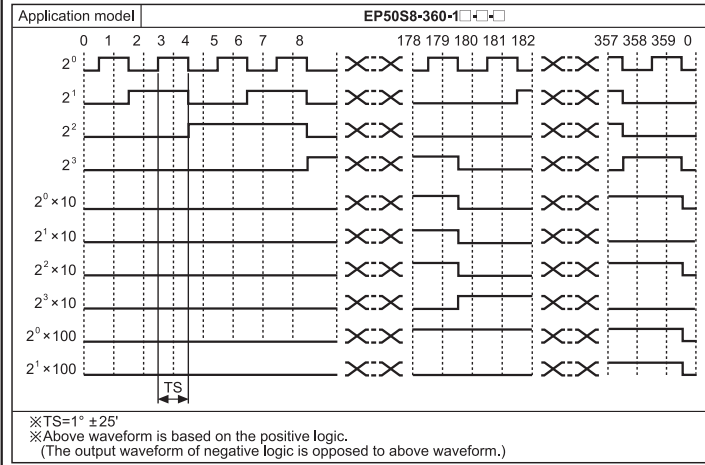
24division output waveform(BCD code output)



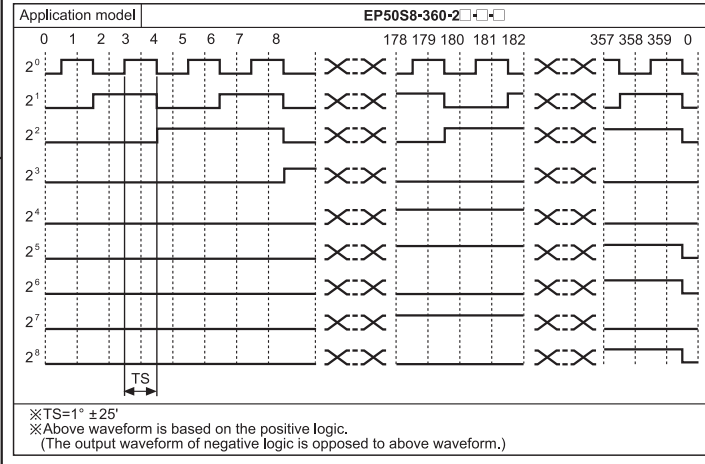
24division output waveform(Binary code output)



360division output waveform(BCD code output)



360division output waveform(Binary code output)



Connections

Table for Connections detailing BCD Code and Binary Code/Gray Code color coding for resolutions from 6 to 1024 divisions.

- Unused wires must be insulated. Encoder case and shield wire must be grounded(F.G.). N.C.: Not Connected. Output cable must not be short-circuited, because Driver IC is used in output circuit.

Binary Code/Gray Code

Table for Binary Code/Gray Code color coding for resolutions from 6 to 1024 divisions.

- Unused wires must be insulated. Encoder case and shield wire must be grounded(F.G.). N.C.: Not Connected. Output cable must not be short-circuited, because Driver IC is used in output circuit.

Caution for using

- Installation: This unit consists precision components. Therefore please treat this product carefully. When you install this unit, if eccentricity and deflection angle are larger, it may shorten the life cycle of this unit or cause damage by overload on the shaft. Do not put strong impact when insert coupling into shaft. Please set zero point with metallic ball for sub-mounting, then use this unit. For using: Do not connect and short circuit during power on. It may cause damage to this unit. When the power source is Switching Power, there may be surge. F.G. terminals of power must be grounded and wire should be shorter in order not to be influenced by noise. Environment: Do not use this unit with below environment, it may cause malfunction. Place where this unit or component may be damaged by strong vibration or impact. Place where there are lots of flammable or corrosive gases. Place where strong magnet field or electric noise are occurred. Place where is beyond of rated temperature or humidity. Place where strong acids or alkali near by. Vibration and Impact: Be sure that when the strong impact or vibration loads on this unit, the error pulse may occur. Encoder with high resolution can be easily affected by vibration, therefore fix the mounting bracket when installing this unit. Please use metallic coupling when the application needs severe acceleration or deceleration frequently. Wire connection: Do not draw the wire with over 30N strength after wiring. When a high voltage or power line pass near by the encoder cable, be sure to wire the encoder cable in separated conduit to prevent malfunction. It may cause malfunction if above instructions are not followed.

Major products

- Photoelectric sensors, Temperature controllers, Fiber optic sensors, Temperature/humidity transducers, Door sensors, SSR/Power controllers, Door side sensors, Counters, Area sensors, Timers, Proximity sensors, Panel meters, Pressure sensors, Tachometer/Pulse/Rate/meters, Rotary encoders, Display units, Connector/Sockets, Sensor controllers, Switching mode power supplies, Control switches/Lamps/Buzzers, I/O Terminal Blocks & Cables, Stepper motors/drivers/motion controllers, Graphic/Logic panels, Field network devices, Laser marking system(Fiber, CO2, Nd:YAG), Laser welding/soldering system



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